Dr. R. M. Strong has resigned the chair of anatomy at the University of Mississippi to accept the position of associate professor of anatomy in the medical school of Vanderbilt University, Nashville, Tenn.

The following appointments to the faculty of the University and Bellevue Hospital Medical College have been announced: Dr. William C. Lusk, professor of surgery; Dr. Joseph B. Bissell, Dr. Thomas A. Smith, and Dr. Arthur M. Wright, clinical professors of surgery; Dr. W. Howard Barber, chief of clinic, department of surgery; Dr. George Francis Cahill, instructor in surgery; Dr. Theodore J. Abbott, clinical professor of medicine; Dr. Benjamin M. Levine, clinical professor of cancer research; Dr. Charles Krumwiede, Jr., assistant professor of bacteriology and hygiene; Miss Mary Smeeton, instructor in bacteriology.

Promotions in the philosophical and engineering faculties of the Johns Hopkins University has been made as follows: Knight Dunlap, professor of experimental psychology; Joseph C. W. Frazer, professor of analytical chemistry; E. Emmet Reid, professor of organic chemistry; Grandville R. Jones, associate professor of civil engineering; Paul B. Davis, associate in chemistry; William B. Kouwenhoven, associate in electrical engineering.

DISCUSSION AND CORRESPONDENCE

CULTURE MEDIA FOR PARAMECIA AND EUGLENA

A communication to this journal by J. B. Parker, entitled "A Method of Maintaining a Supply of Protozoa for Laboratory Use,"[1] brought to my mind a culture medium which I used at the University of Chicago for a few years and found thoroughly reliable. The method was given to me by one of my assistants at the time, Mr. John G. Sinclair, who according to my recollection had obtained it from Dr. A. W. Peters, of the University of Illinois.

Enough wheat to make about one half gram per liter of the culture solution is boiled in a small quantity of water for a few minutes. (The original method as given to me called for cracked wheat, but I obtained good results with whole wheat.) The boiled wheat is then placed in tap water in the ratio indicated above, and the solution is inoculated either from some culture of paramecia already on hand or with pond water. In most cases, I used water taken from the immediate vicinity of submerged pond vegetation. It was my custom to use large battery jars for the culture media, which were placed with glass covers on a table in the room where the paramecia were to be used. In the course of a week or so, depending upon the room temperature, I was always able to obtain an abundance of large paramecia.

A method for *Euglena* was also given to me, but I never used it, having no occasion to need this protozoan. I presume the method is equally good. One half gram of rice per liter of culture solution is washed thoroughly and drained. The washed rice is then boiled for about five minutes and put into tap water. After inoculation, the solution is placed where it may obtain direct sunlight.

The directions also state that it is advisable to add about one fourth gram of boiled grain (rice or wheat according to the culture) per liter of the medium, every three weeks and also just before use by a class begins. Furthermore, it is desirable to stir the solution every few days for an oxygen supply.

R. M. Strong

[1] Science, November 19, 1915, p. 727.

SEVERE RESTRICTIONS TO NORMAL GEOGRAPHIC CYCLE

The formulation of the conception that there is a distinct cycle of corrasive development through which all land-forms must pass is now generally recognized to be one of the first half-dozen brilliant achievements in geologic science of the century just closed. Like many broad generalizations, this one is, upon critical submission to quantitative measurement, found to be too sweeping in its character. Close inspection soon discovers that there are grave complications in the normal scheme. Already the latter has to be especially adapted to fit, on the one hand, condi-

tions of glacial climate, and, on the other hand, conditions of arid climate.

Limitations to the normal geographic cycle are even more severe than these bare statements intimate. If the United States, for instance, be divided into three north and south belts of subequal size one of the divisional lines coincides with the course of the Mississippi River; and the other with the line of the Rocky Mountain front. The belts are each approximately one thousand miles in width.

In the easternmost of these belts the forces of normal landscape sculpturing are most active. The rivers at the present time are wearing down the mountains and hills towards base-level about as rapidly as is done anywhere else on the face of the globe, and about as fast as it is ever done.

In the central belt, the tract lying between the Great River and the Rocky cordillera, the streams traversing the region are far from doing normal corrasive work or of producing net results. Between the Canadian and Mexican boundaries, a distance of more than 2,000 miles, only five streams leave the Rocky Mountain front, and four of these are quite inconsiderable. They can have relatively little influence in the effort to base-level so vast a region as the Great Plains. Dust and sands from western deserts are constantly exported to this region. In fact, lying on the leeward side of the arid lands the Great Plains country is a chief area of wind-laid depositions. The continental deposits over much of the region are more than 1,000 feet thick, a fact amply attesting the prodigious extent and the unusual rapidity of their formation. This circumstance alone explains the excessively slow rate of continental denudation which the recent government stream-measurements of the Mississippi River give. The normal geographic cycle does not obtain in this region.

In the westernmost belt the general lowering and leveling effects of rivers are inappreciable. Water-work is reduced to its lowest terms. Wind is the mastering erosive agency. The geographic cycle has for its dominant element wind-scour instead of stream-corrasion.

The idea has a still broader bearing. It has world-wide application. According to the late Sir John Murray more than one fifth of the entire land surface of the globe is desert. Another one fifth and more is little affected by normal river corrasion. Still another one fifth of the land surface is, or at least was until very recent geologic times, as truly desert as is the Sahara to-day. Of all the world's land area, therefore, fully two thirds are not subject to normal stream-work; and the normal geographic cycle is without verity.

CHARLES KEYES

UGO SCHIFF

IN SCIENCE, June 30, 1916, page 922, Professor Wm. McPherson, in his obituary notice of Ugo Schiff, says:

> This recalls the fact also that Professor Baeyer's laboratory at Munich did not include any laboratory devoted to physical chemistry until 1913, when a small room was fitted up for this work.

Professor McPherson is mistaken. During a number of years before and after 1887, Krüss gave, in Baeyer's laboratory, courses of lectures and laboratory work in physical chemistry. The complete courses ran through several semesters and the experimental exercises were given in a room specially fitted. They included density determinations of solids, liquids and gases, by various methods, cryoscopic molecular weights, spectroscopic work (emission and absorption), optical rotation, etc. Probably no better courses were given anywhere, at that time, outside Ostwald's laboratory. It may well be that Krüss's premature death caused the courses to be discontinued.

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SCIENTIFIC BOOKS

The Origin of the Earth. By THOMAS CHROWDER CHAMBERLIN, head of the Department of Geology, The University of Chicago. The University of Chicago Press, 1916. Pp. x + 271. (The University of Chicago Science Series.)

This book, by the distinguished author of the planetesimal hypothesis, is one which has